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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/629,422	07/31/2000	Lawrence G. Anderson	1269P14	4427

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PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
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EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/629,422

Applicant(s)

ANDERSON ET AL.

Examiner

Susan W Berman

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-87 is/are pending in the application.
- 4a) Of the above claim(s) 42-44, 46-58, 65, 67-72, 79 and 81-84 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41, 45, 59-64, 66, 73-38, 80, 85-87 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>16 pages (8/04)</u> . | 6) <input type="checkbox"/> Other: _____ |

Information Disclosure Statement

The Foreign patent documents and the Non-Patent Literature documents cited by applicant in the IDS received 12-29-2000 have been received and considered, as noted on PTOL-1449.

Election/Restrictions

Applicant's election with traverse of the species of composition components (a) a hydroxyl functional polycarboxylate, (b) a hydroxyl functional polysiloxane, (c) a polyisocyanate and (d) colloidal silica filed 09-20-2004 is acknowledged. The examiner is considering component (a) to be further defined as an unsaturated ester of a hydroxyl functional polycarboxylate, as set forth on pages 9-10 of the instant specification, in order to identify the kind of radiation curable functional group present.

The traversal is on the ground(s) that the office has not shown that there would be a serious burden to examine the claims together with respect to the requirement for election of species. This argument is not persuasive because the search for all possible compositions comprising all known materials corresponding to components (a) -(d) as defined in claim 1 and all possible combinations of such components would be unduly extensive. Component (a) comprises all known materials, including numerous kinds of urethane, ether, ester, or siloxane monomers, oligomers, and /or polymers, comprising at least one radiation-curable reactive group, such as a (meth)acrylate, vinyl ether, epoxy, vinyl maleimide, or fumarate group. Component (b) comprises all known materials, including numerous kinds of monomers, oligomers, and /or polymers comprising at least one thermally curable reactive group, such as hydroxyl, vinyl, urethane, urea, amide, carbamate, isocyanate, epoxy, carbonyl, amine, anhydride, aziridine groups. The possible combinations of various components (a) and (b) are too numerous and functionally different to describe.

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Response to Arguments

The rejection of claims 14-15 under 35 USC 112, second paragraph, is withdrawn in response to applicant's arguments for reconsideration.

Applicant's arguments filed 09-20-2004 have been fully considered but they are not persuasive.

With respect to the rejection of claims 45 and 59-61 under 35 USC 112, second paragraph, applicant's arguments are unpersuasive because an uncured coating composition is not permanently adhered to a substrate and thus does not form a "coating".

With respect to the rejection of claims under 35 USC 102 over Maag et al, applicant argues that Maag et al disclose a system wherein "B" can be a silicone (meth)acrylate among several olefinically unsaturated compounds taught, and that silicone (meth)acrylate are not used in the examples. This argument is not persuasive because patentee's disclosure is not limited to the examples and because Maag et al clearly teach using silicone (meth)acrylates in "system B)" instead of the urethane acrylate used in the examples. Maag et al teach that any polymer or oligomer having free radically polymerizable olefinic double bonds is suitable in the disclosed invention. Since Maag et al disclose several embodiments of the disclosed invention, applicant could overcome the rejection with a comparative showing of unexpected results for compositions comprising silicone (meth)acrylates instead of the alternative olefinically unsaturated materials taught by Maag et al to show that Maag et al do not anticipate the instantly claimed invention.

With respect to the rejection of claims under 35 USC 103 over Maag et al, applicant argues that Maag et al do not suggest selecting silicone (meth)acrylates from the olefinically unsaturated polymers and oligomers disclosed. This argument is not persuasive for the following reasons. Maag et al provide motivation by teaching that any polymer or oligomer having free radically polymerizable olefinic double bonds are suitable in the disclosed invention (column 7, line 53, to column 8, line 18). One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of

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success because Maag et al teach that any of the (meth)acrylate functional prepolymers or oligomers, including silicone (meth)acrylates, mentioned would provide a free-radically curing system. The examiner will consider a comparative showing of unexpected results for compositions comprising silicone (meth)acrylates instead of the alternative olefinically unsaturated materials taught by Maag et al.

With respect to the combination of Maag and Wilt et al, applicant argues that the polysiloxanes disclosed by Wilt et al contain free radically polymerizable double bonds. This argument is not persuasive because Wilt et al teach that the group R^a in formulas (II) and (III) has the structure R_1-O-X wherein R_1 is alkylene in which alkylene refers to the linking group $-(CH_2)_n-$ and not to a polymerizable double bond.

With respect to the combination of Maag et al and Bilkadi, applicant argues that Maag et al do not provide motivation to select specific particles from all possible pigments and extenders. This argument is unpersuasive because Maag et al provide motivation to add transparent pigments and/or extenders by so teaching. Further motivation to employ the colloidal silicon dioxide particles disclosed by Bilkadi is provided by the teaching of Bilkadi that the disclosed silicone-free dispersions of silica are clear and stable in photocurable acrylate monomer compositions and exhibit excellent abrasion resistant and weatherable coatings for applications such as motorized vehicles. Both references teach radiation curable compositions for coating substrates and teach transparent particles that would not be expected to interfere with radiation curing.

With respect to the rejection for obviousness-type double patenting, it is not agreed that the '519 patent claims do not teach a component having radiation curable functional groups. Claim 1 sets forth curing by exposure to ionizing or actinic radiation and thermal energy. Claims 19 and 45 set forth radiation curable functional groups, such as vinyl, unsaturated ester, maleimide, fumarate, epoxy, for the polysiloxane having a reactive functional group. Thus the claims clearly teach compositions curable by radiation and thermal energy and clearly suggest compositions comprising radiation curable functional groups.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 45 and 59-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 45 claims a coated substrate and then sets forth a composition according to claim 1 "deposited" on the substrate. The uncured composition applied onto a substrate fails to provide a "coated"

substrate, as understood in the coating technology, until the composition is cured, polymerized or hardened in order to provide a "coating". An uncured composition is not permanently adhered to the substrate. Claims 59-61 recite a method comprising "forming a composition" over a substrate. It is not clear what is meant by "forming a composition". Does applicant intend to claim a method of applying the composition to the substrate or a method of providing a film or sheet by curing the composition and applying it to the substrate, for example? A method intended to provide a polymer coated substrate, not a substrate having an uncured coating composition on it, requires that the composition be cured.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11, 17-20, 34-37, 45, and 59-61 are rejected under 35 U.S.C. 102(b) as anticipated by Maag et al (WO 98/40170 or equivalent 6,333,077). The disclosure of US '077 is relied upon. The composition is as set forth in the Abstract and has a resin solids content of 50-98 wt % of system (A) and 2-50 wt % system (B) (column 4, lines 28-44). System A is thermally curable and includes crosslinking

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agents (applicant's curing agents). System B is a radiation curable system comprising prepolymers containing free radically polymerizable olefinic double bonds. Different examples of prepolymers or oligomers, including silicone (meth)acrylates, are taught in column 8, line 12. See column 7, line 53, to column 8, line 19. Transparent pigments or extenders can be added (column 8, lines 64-66). Photoinitiators are taught in column 8, lines 36-50 and emulsifiers are taught in column 9, lines 28-33. See examples 2-7. Those compositions disclosed by Maag et al wherein the compositions comprise silicone (meth)acrylates and particulate transparent pigments or extenders anticipate the instantly claimed compositions. It is noted that Maag et al do not disclose applicant's elected species of composition.

Claims 1-11, 17-20, 34-37, 45, and 59-61 are rejected under 35 U.S.C. 103(a) as obvious over Maag et al (WO 98/40170 or equivalent 6,333,077). The disclosure of US '077 is relied upon. See the discussion of the disclosure of US '077 above. It would have been obvious to one skilled in the art at the time of the invention to include a silicone (meth)acrylate material in system B, as taught by Maag et al in column 8. Maag et al provide motivation by teaching that any polymer or oligomer having free radically polymerizable olefinic double bonds is suitable in the disclosed invention. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of success because Maag et al teach that any of the (meth)acrylate functional prepolymers or oligomers, including silicone (meth)acrylates, mentioned would provide a free-radically curing system in the clear lacquer coating composition disclosed. With respect to claims 40-41 and 59-61, the properties set forth would be expected to be provided by curing the disclosed coating compositions wherein the components employed correspond to the components instantly claimed.

Claims 12-16 are rejected under 35 U.S.C. 103(a) as obvious over Maag et al (WO 98/40170 or equivalent 6,333,077), as applied to claims 1-11, 17-20, 34-37, 45, and 59-61 above, and further in view

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of Wilt et al (5,939,491). The disclosure of Maag et al is discussed above. Maag et al do not disclose compositions comprising a siloxane containing thermally curable reactive groups for thermally curable component A. Wilt et al teach curable compositions based on polysiloxanes comprising thermally curable functional groups. The compositions are said to provide excellent appearance, mar resistance, acid etch resistance, adhesion, pot life, improved tack time and corrosion resistance (Abstract). Pigments and suitable amounts of pigments are taught in column 8.

It would have been obvious to one skilled in the art at the time of the invention to employ a thermally curable polysiloxane disclosed by Wilt et al as component (A) in the compositions disclosed by Maag et al. Maag et al provide motivation by teaching that numerous different kinds of thermally curable binders are suitable in the disclosed compositions. Wilt et al teach advantages, as set forth above, that can be provided by the disclosed polysiloxanes. It would have been obvious to one skilled in the art at the time of the invention to employ any of the transparent pigments disclosed by Wilt et al in the amounts taught by Wilt et al in analogous art as the transparent pigment in the compositions disclosed by Maag et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of success since Maag et al teach that transparent pigments may be used in the clear lacquer coatings.

Claims 21-33 are rejected under 35 U.S.C. 103(a) as obvious over Maag et al (WO 98/40170 or equivalent 6,333,077), as applied to claims 1-11, 17-20, 34-37, 45, and 59-61 above, and further in view of Bilkadi (5,104,929). The disclosure of Maag et al is discussed above. Maag et al teach transparent pigments or extenders to the disclosed clear lacquer compositions but do not mention specific materials or particle sizes. Bilkadi discloses abrasion resistant coatings comprising diethylenically unsaturated materials, such as acrylated siloxanes, and colloidal silica particles surface treated by reaction with ethylenically unsaturated monomers. See column 3, line 63, to column 4, line 50, column 6, lines 47-51,

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column 7, lines 27-65, and Example 19. It would have been obvious to one skilled in the art at the time of the invention to employ the silicon dioxide dispersions taught by Bilkadi as transparent extenders in the coating compositions disclosed by Maag et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful transparent extender, as taught by Maag et al. One of ordinary skill in the art at the time of the invention would have been further motivated by the teaching of Bilkadi that the silicone-free dispersions of silica are clear and stable in photocurable acrylate monomers compositions and exhibit excellent abrasion resistant and weatherable coatings for applications such as motorized vehicles.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-41, 45 and 59-61 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-75 of U.S. Patent No. 6,387,519. Although the conflicting claims are not identical, they are not patentably distinct from each other because the compositions set forth in both sets of claims require a polysiloxane having reactive functional groups, the same kinds of particles, the same kinds of curing agents and film-forming material different from the polysiloxane having reactive functional groups and are curable by exposure to radiation and/or thermal energy. It would have been obvious to one skilled in the art at the time of the invention to include a

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component having radiation curable functional groups selected from the functional groups set forth in the claims of US '519 in order to provide a composition curable by exposure to radiation and thermal energy, as set forth in the claims of S.N. 09/629422. With respect to instant claims 45 and 59-61: Claims 60-65 and 73-79 of US '519 set forth a method for providing a cured composition on a substrate by thermal and/or radiation curing. It would have been obvious to one skilled in the art at the time of the invention to select compositions comprising a polysiloxane having a radiation curable functional group from the polysiloxanes claimed in US '519 in order to form a coating on a substrate by radiation curing the composition as set forth in claims of US '519. It would have been obvious to one skilled in the art at the time of the invention to provide the coated substrate set forth in instant claim 45 by selecting compositions comprising a polysiloxane having a radiation curable functional group from the polysiloxanes claimed in US '519 in order to form a coating on a substrate by radiation curing the composition as set forth in claims of US '519.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

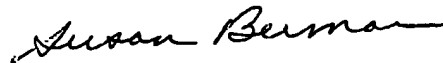
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman
Primary Examiner
Art Unit 1711

SB
October 21, 2004

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